AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A computer-implemented method for embedding hidden data in an audio signal, comprising the steps of:

receiving the audio signal in a base domain;

transforming the received audio signal to one of a linear prediction residue domain and a cepstrum domain, wherein transformation of the received audio signal to the cepstrum domain includes a fast Fourier transform, followed by a logarithmic operation, and then an inverse fast Fourier transform; and

embedding the hidden data in one of the linear prediction residue domain and the cepstrum domain via parametric representation of the audio signal.

2. (Previously Presented) The method of Claim 1 further comprising the step of:

transforming the received audio signal to one of the linear prediction residue domain and the cepstrum domain such that transform domain coefficients are generated that are indicative of the transformed audio signal.

3. (Previously Presented) The method of Claim 1 further comprising the steps of:

transforming the received audio signal to one of the linear prediction residue domain and the cepstrum domain such that transform domain coefficients are generated that are indicative of the transformed audio signal; and

manipulating a statistical measure of a selected subset of the transform domain coefficients in order to embed the hidden data.

4. (Previously Presented) The method of Claim 3 further comprising the step of:

modulating the embedded data with at least one predetermined statistical feature of the transformed audio signal.

5. (Previously Presented) The method of Claim 3 further comprising the step of:

increasing the amplitude of at least one predetermined feature of the transformed audio signal so that statistical mean of the predetermined feature is positive for embedding a bit of one in the audio signal.

6. Cancelled.

7. Cancelled.

8. (Original) The method of Claim 1 further comprising the step of:

using a psycho-acoustic model to control inaudibility of the embedded data.

9. (Currently Amended) The method of Claim 1 further comprising the steps of:

generating an inverse transformation signal using the embedded hidden data that is in the transformed audio signal;

receiving an attack upon the generated inverse transformation signal;

transforming the attacked inverse transformation signal to a non-base domain so as to generate a second transformed audio signal that is in the non-base domain; and

extracting the embedded hidden data from the second transformed audio signal.

10. (Previously Presented) The method of Claim 1 further comprising the steps of:

transforming the received audio signal to the cepstrum domain;

embedding the hidden data in the cepstrum domain; and

enforcing a positive mean to embed a "1" and keeping a zero mean intact to embed a "0" in the cepstrum domain.

11. (Currently Amended) A computer-implemented apparatus for embedding hidden data in an audio signal, comprising the steps of:

a data input device for receiving the audio signal in a base domain;

a signal transformer connected to the data input device for transforming the received audio signal to one of a linear prediction domain and a cepstrum domain, wherein transformation of the received audio signal to the cepstrum domain includes a fast Fourier transform, followed by a logarithmic operation, and then an inverse fast Fourier transform; and

an embedder connected to the signal transformer for embedding the hidden data in one of the linear prediction domain and the cepstrum domain of the audio signal.

12. (Previously Presented) The apparatus of Claim 11 wherein the signal transformer transforms the received audio signal to the non-base domain such that transform domain coefficients are generated that are indicative of the transformed non-base domain audio signal, said embedder manipulating a statistical measure of a selected subset of the transform domain coefficients in order to embed the hidden data.

13. (Cancelled).

14. (Cancelled).

15. (Original) The apparatus of Claim 11 further comprising:

a psycho-acoustic model to control inaudibility of the embedded data.

16. (Previously Presented) The apparatus of Claim 11 wherein the transformer transforms the received audio signal to the cepstrum domain, said embedder embedding the hidden data in the cepstrum domain by enforcing a positive mean to embed a "1" and keeping a zero mean intact to embed a "0" in the cepstrum domain.

17. (New) A computer-implemented method for embedding hidden data in an audio signal, comprising the steps of:

receiving the audio signal in a base domain;

transforming the received audio signal to a linear prediction residue domain; and

embedding the hidden data in the linear prediction residue domain via parametric representation of the audio signal.

18. (New) The method of Claim 17 further comprising the step of:

transforming the received audio signal to the linear prediction residue domain such that transform domain coefficients are generated that are indicative of the transformed audio signal.

19. (New) The method of Claim 18 further comprising the steps of:

manipulating a statistical measure of a selected subset of the transform domain coefficients in order to embed the hidden data.

20. (New) The method of Claim 19 further comprising the step of:

modulating the embedded data with at least one predetermined statistical feature of the transformed audio signal.

21. (New) The method of Claim 20 further comprising the step of:

increasing the amplitude of at least one predetermined feature of the transformed audio signal so that statistical mean of the predetermined feature is positive for embedding a bit of one in the audio signal.

22. (New) The method of Claim 17 further comprising the step of:

using a psycho-acoustic model to control inaudibility of the embedded data.

23. (New) The method of Claim 17 further comprising the steps of:

generating an inverse transformation signal using the embedded hidden data that is in the transformed audio signal;

receiving an attack upon the generated inverse transformation signal;

transforming the attacked inverse transformation signal to a non-base domain so as to generate a second transformed audio signal that is in the non-base domain; and

extracting the embedded hidden data from the second transformed audio signal.